

Rec'd PCT/PTO 04 APR 2005

10/530253

**RAW SEQUENCE LISTING**

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/530253  
Source: PCT  
Date Processed by STIC: 4-13-05

**ENTERED**



PCT

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/530,253

DATE: 04/13/2005  
TIME: 09:34:29

Input Set : A:\00400769.txt  
Output Set: N:\CRF4\04132005\J530253.raw

3 <110> APPLICANT: Cassetti, Maria C.  
4 Smith, Larry  
5 Jeffrey K. Pullen  
6 Susan P. McElhiney  
8 <120> TITLE OF INVENTION: HUMAN PAPILLOMAVIRUS POLYPEPTIDES AND IMMUNOGENIC  
COMPOSITIONS  
10 <130> FILE REFERENCE: 00630/100M137-US2  
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/530,253  
C--> 12 <141> CURRENT FILING DATE: 2005-04-04  
12 <150> PRIOR APPLICATION NUMBER: PCT/US2003/031726  
13 <151> PRIOR FILING DATE: 2003-10-02  
15 <150> PRIOR APPLICATION NUMBER: US 60/415,929  
16 <151> PRIOR FILING DATE: 2002-10-03  
18 <160> NUMBER OF SEQ ID NOS: 65  
20 <170> SOFTWARE: PatentIn version 3.1  
22 <210> SEQ ID NO: 1  
23 <211> LENGTH: 248  
24 <212> TYPE: PRT  
25 <213> ORGANISM: Human papillomavirus type 16  
27 <400> SEQUENCE: 1  
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30 1 5 10 15  
33 Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr  
34 20 25 30  
37 Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Phe Arg  
38 35 40 45  
41 Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Cys Asp  
42 50 55 60  
45 Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys  
46 65 70 75 80  
49 Tyr Ser Val Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu  
50 85 90 95  
53 Cys Asp Leu Leu Ile Arg Cys Ile Asn Cys Gln Lys Pro Leu Cys Pro  
54 100 105 110  
57 Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile  
58 115 120 125  
61 Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg  
62 130 135 140  
65 Thr Arg Arg Glu Thr Gln Leu His Gly Asp Thr Pro Thr Leu His Glu  
66 145 150 155 160  
69 Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp Leu Tyr Cys Tyr Glu  
70 165 170 175  
73 Gln Leu Asn Asp Ser Ser Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala  
74 180 185 190

(PS.6)

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77 Gly Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys  
78 195 200 205  
81 Cys Lys Cys Asp Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val  
82 210 215 220  
85 Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val  
86 225 230 235 240  
89 Cys Pro Ile Cys Ser Gln Lys Pro  
90 245  
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94 <211> LENGTH: 747  
95 <212> TYPE: DNA  
96 <213> ORGANISM: Human papillomavirus type 16  
98 <400> SEQUENCE: 2  
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101 acaactatac atgatataat attagaatgt gtgtactgca agcaacagtt actgcgcacgt 120  
103 gaggtatatg actttgcatt tcgggattta tgcataatgat atagagatgg gaatccatat 180  
105 gctgtatgtg ataaatgttt aaagtttat tctaaaatata gtgagtatag acattattgt 240  
107 tatagtgtgt atggAACAAAC attagaacag caatacaaca aaccgttgg tgatttggta 300  
109 attagggtgtta ttaactgtca aaagccactg tgcgttggaa aaaaagcaag acatctggac 360  
111 aaaaagcaaa gattccataa tataaggggg cgggtggaccg gtcgatgtat gtcttgggc 420  
113 agatcatcaa gaacacgtag agaaaacccag ctgcgttggat atacaccatc attgcgtt 480  
115 tatagtttatg atttgcaacc agagacaact gatctact gttatggca attaaatgac 540  
117 agctcagagg aggaggatga aatagatggt ccagctggac aagcagaacc ggacagagcc 600  
119 cattacaata ttgtAACCTT ttgttgcatt tgcgttgcatt cgcttcgggt gtgcgttacaa 660  
121 agcacacacg tagacattcg tactttggaa gacctgttacat tggcacaact aggaattgt 720  
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128 <212> TYPE: PRT  
129 <213> ORGANISM: Human papillomavirus type 16  
131 <400> SEQUENCE: 3  
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137 Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr  
138 20 25 30  
141 Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Phe Arg  
142 35 40 45  
145 Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Gly Asp  
146 50 55 60  
149 Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys  
150 65 70 75 80  
153 Tyr Ser Val Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu  
154 85 90 95  
157 Cys Asp Leu Leu Ile Arg Cys Ile Asn Gly Gln Lys Pro Leu Cys Pro  
158 100 105 110  
161 Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile  
162 115 120 125  
165 Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg  
166 130 135 140

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169 Thr Arg Arg Glu Thr Gln Leu His Gly Asp Thr Pro Thr Leu His Glu  
170 145 150 155 160  
173 Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly  
174 165 170 175  
177 Gln Leu Asn Asp Ser Ser Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala  
178 180 185 190  
181 Gly Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys  
182 195 200 205  
185 Cys Lys Cys Asp Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val  
186 210 215 220  
189 Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val  
190 225 230 235 240  
193 Cys Pro Ile Cys Ser Gln Lys Pro  
194 245  
197 <210> SEQ ID NO: 4  
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199 <212> TYPE: DNA  
200 <213> ORGANISM: Human papillomavirus type 16  
202 <400> SEQUENCE: 4  
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205 acaactatac atgatataat attagaatgt gtgtactgca agcaacagtt actgcgcacgt 120  
207 gaggtatatg actttgctt tcgggattta tgcatagtat atagagatgg gaatccatat 180  
209 gctgttaggtg ataaatgttt aaagttttat tctaaaaattt gtgagtatag acattattgt 240  
211 tatagtgtgt atggaacaac attagaacag caatacaaca aaccgttgc tgattttgtta 300  
213 attaggtgta ttaacggtca aaagccactg tgcctgaag aaaagcaaag acatctggac 360  
215 aaaaagcaaa gattccataa tataaggggg cgggtggaccg gtcgatgtat gtcttgc 420  
217 agatcatcaa gaacacgtag agaaacccag ctgcattggag atacacccatc attgcattgaa 480  
219 tatatgttag atttgcacc agagacaact gatctctacg gttatggca attaaatgac 540  
221 agctcagagg aggaggatga aatagatggt ccagctggac aagcagaacc ggacagagcc 600  
223 cattacaata ttgttaacctt ttgttgcaag tgtgactcta cgcttcgggtt gtgcgtacaa 660  
225 agcacacacg tagacattcg tactttggaa gacctgttaa tggcacact aggaattgtg 720  
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231 <211> LENGTH: 248  
232 <212> TYPE: PRT  
233 <213> ORGANISM: Human papillomavirus type 16  
235 <400> SEQUENCE: 5  
237 Met Phe Gln Asp Pro Gln Glu Arg Pro Arg Lys Leu Pro Gln Leu Cys  
238 1 5 10 15  
241 Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr  
242 20 25 30  
245 Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Phe Arg  
246 35 40 45  
249 Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Gly Asp  
250 50 55 60  
253 Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys  
254 65 70 75 80  
257 Tyr Ser Val Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu  
258 85 90 95

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261 Cys Asp Leu Leu Ile Arg Cys Ile Asn Gly Gln Lys Pro Leu Cys Pro  
262 100 105 110  
265 Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile  
266 115 120 125  
269 Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg  
270 130 135 140  
273 Thr Arg Arg Glu Thr Gln Leu His Gly Asp Thr Pro Thr Leu His Glu  
274 145 150 155 160  
277 Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly  
278 165 170 175  
281 Gln Leu Asn Asp Ser Ser Glu Glu Asp Glu Ile Asp Gly Pro Ala  
282 180 185 190  
285 Gly Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys  
286 195 200 205  
289 Cys Lys Cys Asp Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val  
290 210 215 220  
293 Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val  
294 225 230 235 240  
297 Gly Pro Ile Cys Ser Gln Lys Pro  
298 245  
301 <210> SEQ ID NO: 6  
302 <211> LENGTH: 747  
303 <212> TYPE: DNA  
304 <213> ORGANISM: Human papillomavirus type 16  
306 <400> SEQUENCE: 6  
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309 acaactatac atgatataat attagaatgt gtgtactgca agcaacagt actgcgacgt 120  
311 gaggtatatac actttgcctt tcgggattta tgcatagtat atagagatgg gaatccatat 180  
313 gctgttaggtg ataaatgttt aaagttttat tctaaaatta gtgagtatag acattattgt 240  
315 tatagtgtgt atggaacaac attagaacag caatacaaca aaccgttgc tgattttgtta 300  
317 attaggtgta ttaacggtaa aaagccactg tgcctgaaag aaaagcaaaag acatctggac 360  
319 aaaaagcaaa gattccataa tataagggtt cggtggaccg gtcgatgtat gtcttgc 420  
321 agatcatcaa gaacacgtag agaaaacccag ctgcatggag atacacccatc attgcata 480  
323 tatagtttag atttgcaacc agagacaact gatctctacg gttatggca attaaatgac 540  
325 agctcagagg aggaggatga aatagatgtt ccagctggac aagcagaacc ggacagagcc 600  
327 cattacaata ttgttaacctt ttgttgcaag tgcgtactca cgcttcgggtt gtgcgtacaa 660  
329 agcacacacg tagacattcg tactttggaa gacctgttaa tgggcacact aggaattgtg 720  
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334 <210> SEQ ID NO: 7  
335 <211> LENGTH: 248  
336 <212> TYPE: PRT  
337 <213> ORGANISM: Human papillomavirus type 16  
339 <400> SEQUENCE: 7  
341 Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln  
342 1 5 10 15  
345 Pro Glu Thr Thr Asp Leu Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser  
346 20 25 30  
349 Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp  
350 35 40 45

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353 Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr  
354 50 55 60  
357 Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu  
358 65 70 75 80  
361 Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln  
362 85 90 95  
365 Lys Pro Phe Gln Asp Pro Gln Glu Arg Pro Arg Lys Leu Pro Gln Leu  
366 100 105 110  
369 Cys Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val  
370 115 120 125  
373 Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Phe  
374 130 135 140  
377 Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Cys  
378 145 150 155 160  
381 Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr  
382 165 170 175  
385 Cys Tyr Ser Val Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro  
386 180 185 190  
389 Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Cys Gln Lys Pro Leu Cys  
390 195 200 205  
393 Pro Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn  
394 210 215 220  
397 Ile Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser  
398 225 230 235 240  
401 Arg Thr Arg Arg Glu Thr Gln Leu  
402 245  
405 <210> SEQ ID NO: 8  
406 <211> LENGTH: 747  
407 <212> TYPE: DNA  
408 <213> ORGANISM: Human papillomavirus type 16  
410 <400> SEQUENCE: 8  
411 atgcatggag atacacctac attgcataa tataatgttag atttgcaacc agagacaact 60  
413 gatctctact gttatgagca attaaatgac agctcagagg aggaggatga aatagatgg 120  
415 ccagctggac aagcagaacc ggacagagcc cattacaata ttgtaacctt ttgttgcaag 180  
417 tgtgactcta cgcttcggtt gtgcgtacaa agcacacacg tagacattcg tactttggaa 240  
419 gacctgttaa tggcacact aggaattgtg tgcccatct gttctcagaa accatttcag 300  
421 gaccacacagg agcgacccag aaagttacca cagttatgca cagagctgca aacaactata 360  
423 catgatataa tattagaatg tgtgactgc aagcaacagt tactgcgacg tgaggtat 420  
425 gactttgctt ttgggattt atgcataatgata tataagatg ggaatccata tgctgtatgt 480  
427 gataaatgtt taaagttta ttctaaaatt agtgagtata gacattattg ttatagtgt 540  
429 tatggacaaa cattagaaca gcaataacaac aaaccgtgt gtgattttt aattaggtgt 600  
431 attaactgtc aaaagccact gtgtcctgaa gaaaagcaaa gacatctgga caaaaagcaa 660  
433 agattccata atataagggg tcggtgacc ggtcgatgta tgtcttggc cagatcatca 720  
435 agaacacgta gagaaaccca gctgtaa 747  
438 <210> SEQ ID NO: 9  
439 <211> LENGTH: 248  
440 <212> TYPE: PRT  
441 <213> ORGANISM: Human papillomavirus type 16  
443 <400> SEQUENCE: 9

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 04/13/2005  
PATENT APPLICATION: US/10/530,253 TIME: 09:34:30

Input Set : A:\00400769.txt  
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**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:39; Xaa Pos. 1,2,3,8,12,15,19,20,22,23,24,25,29,30,31,37,42,46,50,53  
Seq#:39; Xaa Pos. 59,60,62,64,66,67,70,76,78,80,82,83,88,92,93,95,97,99,106  
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Seq#:39; Xaa Pos. 145,147,148,149,150,151,152  
Seq#:40; Xaa Pos. 2,4,5,9,10,11,16,19,20,21,24,30,33,34,36,37,38,39,40,41  
Seq#:40; Xaa Pos. 42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,59,61,62  
Seq#:40; Xaa Pos. 63,66,68,69,70,71,72,74,78,79,80,84,94,95,99,102,103,104

VERIFICATION SUMMARY  
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Input Set : A:\00400769.txt  
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L:12 M:270 C: Current Application Number differs, Replaced Current Application No  
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:1725 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0  
M:341 Repeated in SeqNo=39  
L:1778 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0  
M:341 Repeated in SeqNo=40